

## REMARKS

Claims 1, 7, 9, 15-17, and 21-29 were previously presented. Claims 2-5, 10, and 11 are original. Claims 6, 8, 12, 14, and 18-20 were previously canceled. Claims 30-32 are canceled by this amendment. A divisional application directed to the subject matter of these claims has been filed. Claims 33-42 are new. Upon entry of the amendments, claims 1-5, 7, 9-11, 13, 15-17 and 21-29 and 33-41 will be pending, with claims 1-5, 7, 9-11, 13, 15-17, 21-29 and 33-42 under active consideration.

New claim 33 is supported by claim 1 as previously presented and in paragraphs 42 and 45 of the specification.

New claim 34 is supported in paragraphs 30, 36, and 39 of the specification.

New claim 35 is supported in paragraph 30 of the specification.

New claim 36 is supported in paragraph 4 of the specification.

New claims 37 and 38 are supported in paragraph 66 of the specification.

New claim 39 is supported in paragraph 82 of the specification.

New claim 40 is supported in paragraph 58 of the specification.

New claim 41 is supported in paragraphs 42 and 45 of the specification.

New claim 42 is supported in paragraph 45 of the specification.

No new matter has been added.

### **Claim Rejections Under 35 U.S.C. § 103(a)**

The Office has rejected claims 1-5, 7, 9-11, 13, 15, and 21-29 under 35 U.S.C. §103(a) over the combination of Randall (US 2002/0155282) and Ali (US 4,47,486). The Office has rejected claim 16 under 35 U.S.C. §103(a) over the combination of Randall, Ali, Babcock (US 4,746,365) and claim 17 under 35 U.S.C. §103(a) over the combination of Randall, Ali, Babcock and Miyakoshi (US 5,827,788). The Office provisionally rejected claims 1-5, 7, 9-11, 13, 15-17 and 21-29 under the grounds of nonstatutory obviousness-type double patenting over claims 1, 3-16 and 18-23 of Application No. 10/417,344 in view of Ali. Finally, the office rejected claims 1-5, 7, 9-11, 13, 15-17 and 21-28 on the ground of nonstatutory obviousness-type double patenting over claims 1-20 of US 6,808,793 in view of Ali.

The disclosure relates to a fiber mat faced gypsum board for use in construction. The disclosed board provides for improved bonding between the fiber mat and the gypsum core of the board. This gives improved support for tiles, insulating material or other exterior finishing materials applied to the board (see paragraph 20 of the specification).

The improved bonding between the fiber mat and the gypsum core is a result of experimental studies of a number of parameters and not from the prediction of known parameters. The parameters studied include, in part, mat thickness, coat weight, filler particle size, coat penetration into the mat, microporosity of the mat and the combined water content at the gypsum core/mat bond region. Applicants note that the last two parameters were unknown in the cited references. The Office has concluded that the experimentally determined parameters recited in the claims would have been predictable, and therefore obvious. Applicants respectfully disagree.

**Claims 1-5, 7, 9-11, 13, 15-17 and 21-29**

Applicants note that parameters such as fiber mat thickness, coat weight, coat penetration, microporosity and water content at the gypsum core/mat bond region can vary greatly. The simultaneous combination of these parameters within a given range for each of these parameters results in millions of possible combinations. The selection of these specific parameters would not have been predictable. In addition, Applicants submit that there would have been no motivation for one skilled in the art to select the recited species of this larger genus (See MPEP 2144.08 (II)(A)(4)).

Applicants submit that the specific recited range for each of these parameters would not have been predictable and had to be determined by extensive experimental studies and, as such, the results were unexpected. Applicants note that unexpected results demonstrate non-obviousness (See MPEP 2145 (VII)). In *KSR (KSR International Co. v. Teleflex, Inc., 82 USPQ 2d 1385 (2007))*, the court clearly stated that if the improvement is more than the predictable use of prior art elements, then the invention is non-obvious. Accordingly, the claimed fiber mat faced gypsum board would not have been obvious under the ruling in *KSR*.

In addition, Applicants note that the cited references do not teach or suggest the recited microporosity as noted by the Office on page 7 of the office action. The Office concludes this

recitation is necessarily present (inherent) in the cited references. Applicants respectfully disagree.

First, Applicants reiterate that obviousness cannot be predicated on what is not known. Controlling microporosity within the recited range was not known in the references at the time the invention was made.

Second, Applicants note that the recited microporosity is not inherent in the cited references. As applicants note on page 19 of the specification, microporosity depends upon a number of parameters. Some of these parameters include mat thickness, coat weight, coat penetration, and coat composition including the particle size distribution of the filler in the coating composition. The recited microporosity cannot be inherent because of the large number of variables involved. Applicants note that the microporosity of substrates can encompass a large spectrum genus. Along this spectrum various test methods have been developed with modified Gurley being one species within this larger spectrum of microporosity measurements. There are other methods for higher and lower porosity. Accordingly, the recited microporosity represents a sub-species within the Gurley test method, which in turn is a species of the larger genus of microporosity measurement. Therefore, the Office's conclusion that the microporosity is inherent in the cited reference is based only on probabilities or possibilities. Applicants note that the courts have determined that

[T]o establish inherency, the extrinsic evidence must make it clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.

(*In Re Robertson*, 169 F.3d 743, 745, and MPEP 2112 (IV)).

Applicants submit that persons of ordinary skill would recognize that the recited microporosity would not have been necessarily present and that the Office's conclusions are based on probabilities or possibilities.

Finally, in regard to microporosity, Applicants respectfully disagree with the Examiner's conclusion the coating composition in Randall is the same as the recited coating composition (See page 7 of the office action). The coating in Randall would not necessarily

have the recited porosity range because the mineral pigment in Randall is different than the particle used in the disclosed board. As noted above, the particle size distribution affects the microporosity of the coating. Smaller particles give lower porosity. The particles in Randall are smaller than the particles in the disclosed board. Specifically, the filler in Randall has a particle size such that at least about 95% of the pigment particles pass through a 325 mesh (44 micron and lower) wire screen.

In contrast, the pigment used to achieve the recited microporosity has a particle size such that at least about 95% by weight of the pigment particles pass through a 100 mesh (149 micron and lower) wire screen. The particle size in Randall is very much smaller than the particle size used to achieve the recited microporosity. While particle size is not recited in claim 1, the data show that a larger particle gives the desired microporosity and the smaller particle of Randall will lead to lower microporosity values as discussed above. This information further demonstrates that the recited microporosity would not have been necessarily present in Randall.

Overall, the combination of Randall and Ali do not teach or suggest all the recitations of the claimed fiber mat faced gypsum board. In addition, the recited microporosity and bond region water content ranges are not inherent in the cited references. Therefore, the claims 1-5, 7, 9-11, 13, 15, and 21-29 would not have been rendered unpatentable under 35 U.S.C. §103(a) over the combination of Randall and Ali.

Accordingly, Applicant respectfully requests that the Office withdraw this rejection.

Applicants note that Babcock and Mihakoshi do not make up for the deficiencies of Randall and Ali, and accordingly, Applicants respectfully request that the Office withdraw the rejection of claims 16 and 17 over these references.

### **Claims 33-42**

The remarks above are also applicable for claims 33-42. Further, Applicants note that none of the cited references teach or suggest the recited pigment particles with about 75% of the particles by number being greater than 5 microns. As noted above, the cited references use a much smaller average particle size pigment having a particle size such that at least 95% of the pigment particles pass through a 325 mesh wire screen.

Clay particles with a 95% 325 mesh are estimated to have an average particle size of about 2 to 5 microns. This can be seen in Table 3 of U.S. 5,529,622 (patent attached). Here, a bentonite clay used in coating has a 94.5% 325 mesh (5.5% + 325 residue). The number of particles greater than 5 microns is about 42 percent, which is much lower than the recited (claim 33) 75% greater than 5 microns.

Table 1 of U.S. 5,529,622 shows a 95% 325 mesh clay with only about 8% of the particles greater than 5 microns. These data show that the 325 mesh pigment particles disclosed in the cited references do not necessarily have the recited (claim 33) 75% of the particles by number being greater than 5 microns or the recited (claim 42) average particle size of 40 microns.

Therefore, claims 33-42 would not have been obvious over the cited references.

### **Double Patenting**

With regard to the double patenting rejections, Applicants submit that the remarks above overcome these rejections.

Specifically, U.S. 6,808,793 does not teach or suggest the recited microporosity or bond water content.

In addition, Application 10/417,344 does not teach or suggest the recited bond water content. Accordingly, Applicants respectfully request that the Office withdraw the double patenting rejections.

In light of the remarks above, Applicants submit the application is in condition for allowance. Favorable reconsideration is respectfully requested.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

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